in oscillating waves diminishes in a geometrical ratio as their distance below the surface increases, which result agrees with Mr. Scott Russell's observations; but that it is interesting to examine whether a series of oscillatory waves can exist in a channel of uniform breadth and depth, upon the supposition that the horizontal excursion of the particles is the same from the top to the bottom. From the analytical investigation of the author, it appears that there can exist in a channel of uniform breadth and depth a series of waves of the same magnitude and moving with the same velocity. In the case of rivers, the tide-wave appears to be of this description. If the effect of friction on the bottom be neglected, the horizontal velocity of the particles may be considered to be the same throughout the whole depth—and the motion is oscillatory, if that due to the stream be separated. But the length of the wave is very great in comparison with the depth, and the vertical motion is so slight, that it may be neglected altogether. On this supposition, which simplifies the investigation, the velocity for a wave of translation is

$$(h+2k)\sqrt{\frac{g}{h}};$$

and for an oscillating wave is $(h+k)\sqrt{\frac{g}{h}}$;

which differ but little from the results previously obtained, and are rather in excess, as was to be expected, when no part of the force has been expended in producing vertical motion.

Referring to the solution of this problem, given by Mr. Airy in the Encyclopædia Metropolitana, and the equation there arrived at, the author states that it is with great diffidence, and not until after the most careful examination, that he ventures to question the accuracy of this result. In a further investigation, he points out the source of this inaccuracy; and in conclusion observes, that it must be confessed to be unsatisfactory to point out an error without supplying the deficiency caused by it, but that the analytical difficulties are such, that he cannot, consistently with the attention required by other avocations, attempt, for the present at least, to continue an investigation which is interesting as a matter of science and useful in its application to hydraulic engineering.

November 30, 1852.

At the Anniversary Meeting,

The EARL OF ROSSE, President, in the Chair.

Dr. Booth, on the part of the Auditors of the Treasurer's Accounts, announced that the total receipts, during the past year, including a balance of £147 8*s*. 6*d*. carried from the account of the preceding year, amounted to £3528 5*s*. 1*d*.; and that the total expenditure, including an investment of £115 0*s*. 0*d*. in the Funds, was £3346 5*s*. 0*d*., leaving a balance in the hands of the Treasurer of £182 0*s*. 1*d*.

The thanks of the Society were voted to the Treasurer and Auditors.

List of Fellows deceased since the last Anniversary.

On the Home List.

John George Children, Esq.
William Tierney Clark, Esq.
Major-Gen. Thomas Colby, R.E.
Augustin F. B. Creuze, Esq.
John Dalrymple, Esq.
George Dollond, Esq.
Capt. C. M. Elliot, M.E.
Sir Josiah John Guest, Bart.
The Duke of Hamilton.
Lieut.-Col. George Hutchinson.
William Jacob, Esq.
Capt. Thos. Locke Lewis, R.E.
Rev. William Forster Lloyd.
Gideon Algernon Mantell, LL.D.
Sir John Henry Pelly, Bart.
George Richardson Porter, Esq.
John Corse Scott, Esq.
William Ford Stevenson, Esq.
Sir Edward Stracey, Bart.
Dr. Thomas Thomson.
Charles Augustus Tulk, Esq.
Peter Evan Turnbull, Esq.
Rev. John Warren.
Sir Frederick Beilby Watson.
The Duke of Wellington.
George Wilbraham, Esq.
Glocester Wilson, Esq.

On the Foreign List.

Paul Erman.

Withdrawn.

The Very Rev. the Dean of Chichester.

List of Fellows elected since the last Anniversary.

On the Home List.

Arthur Kett Barclay, Esq.
Rev. Jonathan Cape.
Arthur Cayley, Esq.
Henry Gray, Esq.
Wyndham Harding, Esq.
Arthur Henfrey, Esq.
John Higginbottom, Esq.
John Mercer, Esq.
Hugh Lee Pattinson, Esq.
Rev. B. Price.
William Simms, Esq.
Hugh E. Strickland, Esq.
John Tyndall, Esq.
Nathaniel Bagshaw Ward, Esq.
Captain Younghusband, R.A.

On the Foreign List.

Adolphe Théodore Brongniart.
Dr. J. Lamont.
Benjamin Peirce.
Victor Regnault.

The President then addressed the Society as follows :

GENTLEMEN,

FOR more than two years the experiment has been tried by your Council, and on a considerable scale, of promoting original research by direct encouragement. The time has now arrived, when, although in most cases the researches are unfinished, still considerable progress having been made, it seems fitting that some account should be rendered to the Society of the measures taken, and the results obtained.

At an earlier period little could have been said except as to our hopes and expectations: we can now point to results; and each succeeding year, as researches draw to a close, new matters of interest will arise requiring your especial notice.

You have all no doubt observed that as science advances, truth has to be sought out under every variety of circumstances. Sometimes the investigation is easy and inviting, at other times laborious and perhaps repulsive. When there is an immediate prospect of striking discoveries, the interest of the subject brings many into the field, and there is often even a vigorous contest for priority; where however the only prize to be obtained is a few dry facts, important in themselves, as opening the way to further progress, but otherwise perhaps of little interest, direct encouragement is necessary. We cannot overrate the importance of collecting facts: the whole history of the inductive sciences shows that without facts discovery cannot progress; that we must, in fact, work the rock if we wish to extract the ore. Where there is much labour and little fame in collecting facts, an impulse is given by associations; the labour is undertaken, and the work accomplished; but often more than labour is necessary: the facts are not to be obtained without cost, and the cost may be much too great to be conveniently borne; it is then that the Council assists; the object is accomplished; and an opening made for the farther advance of scientific discovery. In disposing of the Government Grant, your Council have endeavoured to take a wide view of the interests of science; and therefore in constituting the Committee to decide upon the applications for assistance have passed their own limits, and have associated with themselves an equal number of fellows, selected so as to ensure to each department a fair representation. They were thus made aware of the views and wishes of other Societies, and in more than one instance they have been requested by the British Association to assist that body in researches which seem entitled to national aid. By thus administering their trust, more is effected than the mere results that are obtained by its assistance, for it leads to a more perfect union, a more effective cooperation among men of science, and it tends to place the Royal Society in the position which it was originally designed to hold,—the centre of the system of our intellectual universe, round which the other luminaries of this land pursue each its own orbit.

In applying this grant for the present year, the same principles as in previous years have been taken as a guide, viz. the value of the results expected, and the improbability of their being obtained without pecuniary assistance. Two grants have reference to a branch of Physics still very obscure, but every day increasing in importance; the relation of the molecular actions which formerly were attributed to imponderable fluids, but now are generally considered modes of motion or power. Grove's views as to their correlation are familiar to you, and are now in fact receiving a rigorous verification from the researches of Joule and Thomson. The first has shown by elaborate experiments that heat has a definite equivalent of mechanical power, and also of electrical current; and the other, applying to these facts the resources of theory, has extended this principle to chemical forces with fair promise of success. The experimental verification of his reasoning, and the collection of numerical data, promising as they seem to do, no less than the power of including the whole doctrine of affinity within the range of calculation, appear of such importance, that the Committee have considered the subject worthy of a grant, and have devoted to it a sum of fifty pounds, the amount required.

They have also placed thirty pounds at the disposal of Mr. Joule for an analogous purpose, the investigation of the change of volume which takes place in iron on which magnetism is induced, indicating, as it seems to do, a close connection between that energy, and the tensile and compressive forces of the metal.

A grant of fifty pounds has also been made to Dr. Tyndall, to examine the conducting power of crystals for heat, as compared with their transmission of it. In this last respect, as was long since shown by Melloni, they differ widely; thus rock salt is almost perfectly diathermic or transparent for heat; alum as decidedly the reverse; but the propagation of heat by radiation differs so widely from that by conduction, that it is important to inquire, what differences exist as to the latter; and the more so, because it has been shown by de Senarmont, that in most crystals the conducting power varies in different directions.

An equal sum has been granted to Mr. Dale for researches in the same direction as those of Dr. Kohlrausch (lately made known to the English reader by Dr. Tyndall's translation), respecting the electric tension of the various parts of the voltaic circuit. They belong to the most refined and delicate class of observations, and are peculiarly open to various causes of deception; while the information to be derived from them is of an order, whose value is only now beginning to be fully appreciated. It is a very narrow view of their value to regard them merely as criteria between the contact or chemical theory of the voltaic battery; that question will apparently be soon forgotten in the wider system, to which I have already alluded as indicating the correlation of all these corpuscular forces. Every new fact, every wider glance which we obtain over the world of physics, shows that man can only transform, or modify force, but not create it: even when his own will generates motion in his own body, it does so only by the subversion of chemical affinity, in the components of that body, and so in every other instance. The voltaic current, whatever it may be, can do a continuous and definite amount of chemical or calorific work; its power therefore must be derived from an equivalent and continuous expenditure of some other force. Such an expenditure, as Faraday has well remarked, cannot be afforded by mere contact, but is unequivocally presented by the chemical action of the battery. In the common electrical machine the friction seems to act in producing a succession of changes in the elastic forces of the rubbing surfaces, and the intense electricity thus evolved, shows by its difference of character from the voltaic, the difference of the force from which it proceeds; mechanical power acting by intermitting pressure. This force also, through the medium of the magnet, produces a similar effect; and heat when applied to crystalline or metallic bodies, originates peculiar electric phenomena. Doubtless similar results will also be discovered to proceed from the action of capillary attraction, the disintegration of solids, or the change of density in fluids. Many of these it is probable are concerned in producing the electroscopic phenomena observed in the voltaic circuit, which are by no means necessarily connected with the true current; and therefore independent of mere controversy, it is important that they should be carefully observed and measured. In Mr. Dale's hands we have not only every reason to believe that this will be effectually performed, but that he will also advance and improve the means of making this class of observations which at no distant date must play an important part in molecular physics.

As to Prof. Williamson's grant for investigating the law of the chemical action of masses, Berthollet carried this to an extreme, believing that in every case mass was as important as affinity, so that the strongest force of the latter would be compensated by a larger amount of the former acting by a very weak chemical attraction. This was quite at variance with any theory of definite proportions, and he explained the multitude of instances which seemed to enforce that theory by the influence of cohesion, crystallization, and other molecular forces. This view, though ingenious and containing some truth, has been thrown into the shade by the triumph of the other; but Mr. Williamson believes that he has found in the class of compounds represented by sulphovinic acid, a means of measuring the influence of quantity,

This year a grant has been made, to the same amount as last year, to defray the expense of drawings of interest, to be executed under the direction of Professor Owen: the valuable result of the previous grant, by which a series of beautiful drawings of the skeleton of the Megatherium in the British Museum were obtained, make it desirable that you should continue to profit, in the same way, by his powers and genius.

As to the grants of former years, where the investigations are incomplete, satisfactory reports have been received as to the progress made; where complete there is every reason to be satisfied with the results. Among the latter are Mr. Cooper's Catalogue of 14,888 ecliptic stars. It is a most valuable addition to Astronomy, going down to stars of a magnitude far below that which were previously observed; the limit being those visible in the unilluminated field of an achromatic of $13\frac{7}{10}$ inches aperture. In the Introduction to this work the mode of observation is detailed, and the limits of error within which the places may be affected for a single observation is $1''\cdot3$ or about $6''$ in space; but as many of them have been thirty times observed, and most of them from fifteen to twenty times, the probable error of the places given in the Catalogue may be taken at $2''$. When the maps he is constructing from this Catalogue are completed, we shall possess a knowledge of the zone comprised in six degrees on each side of the Ecliptic, which will ensure the detection of even the minutest asteroid. The scale is 2 inches to the degree, and in some squares there are 150 stars.

I regret to say that the ill health of Dr. Robinson, and the long illness of his principal assistant, have delayed the publication of the Armagh observations, for which a grant was made. Eight hours of right ascension are now ready for the press, but a much more than proportional part of the remainder is completed. The Astronomer Royal has prepared the tabular portion of Mr. Catton's observations, and the introduction is nearly ready, so that the work will be soon in the printer's hands.

The two grants for the examination, the preparation, and the correction of meteorological instruments at the Kew Observatory, appear to have been very successful. To provide the means of testing the many new instruments which are offered to scientific men, so that their real merit may be ascertained, and waste of time and disappointment be prevented, is to render a very important service to science. Regnault's apparatus, recently purchased, has already supplied Standard Thermometers for Government expeditions, and the Committee have received numerous applications for Standard Thermometers constructed with it, from distinguished physicists, and the principal opticians. Dr. Carpenter has completed his drawings of Foraminifera, ninety in number, and Professor E. Forbes has reported so favourably of them that I trust they will soon be published.

A subject of considerable interest has been taken up by Mr. Horner, geological researches in Egypt; the question at issue being the rate at which the alluvial land of the Nile valley was formed, from the first cataract to the sea. The French at the end of the last century made out what they considered to have been the rate of secular increase, about six inches in a century; and the object of the present researches is to ascertain whether that average rate may be assumed to be correct, and if so to apply the scale to vertical sections of the Nile deposit, obtained by sinking pits in the immediate vicinity of monuments, the age of which is known. Extensive researches were made in the summer of 1851, liberally aided by Abbas Pacha, on the site of the ancient city of Heliopolis, and during the last summer on the site of the ancient city of Memphis. The operations have been conducted by an engineer in the Pacha's service. Mr. Horner has had several letters from him describing the operations at Heliopolis: he has also received specimens of the layers of soil passed through in the nine sinkings at Heliopolis, a specimen from the deposit of the Nile water at the time of inundation. Some of the soil from the Barage, and some specimens of Nile water have been analysed under the direction of Dr. Hofmann, at the Royal College of Chemistry. Detailed reports have not yet been received from the engineer, either as to the operations at Heliopolis, or at Memphis; until then it would be premature to form any conclusions.

The success of the system of self-registration as applied to magnetism, and meteorological instruments, and to which Mr. Brooke had contributed not a little, induced him to consider the practicability of contriving apparatus to render the force-magnetometers self-correcting. At present, as the temperature of the magnet varies, a correction is required which is sometimes considerable, and therefore the records of magnetic indication, and of the temperature of the magnet, should be simultaneous to afford proper data for accurate reductions. By this method the labour of deducing results from the photographs is very considerable, and it occurred to Mr. Brooke that an efficient automatic compensation might be applied to the magnet, in the same way as the compensation of the balance of a chronometer. To carry out the necessary experiments a grant was made, and a paper with drawings and descriptions of the apparatus constructed was presented to the Society. The apparatus itself was deposited in the Great Exhibition, as offering satisfactory evidence of the advanced state of magnetic science in this country. Recently three sets of instruments have been made; one set has been sent to Washington, another set is in preparation for the Ecole des Arts et des Métiers at Paris, and a third set for the Cabinet de Physique at Florence.

Mr. Miller's interesting researches on the rain-fall in the lake districts have been completed, and the results communicated to the Society.

A small grant was made to Dr. Thurnam for the drawings of crania exhumed from tumuli, as a basis for certain ethnological inquiries. The drawings have been nearly completed, and Dr. Thurnam hopes in the course of a few months to give so much time to the subject as will be sufficient for the proper arrangement of the drawings, and for describing the evidence on which their appropriation depends.

In the disposal of the Government Grant chemistry has not been forgotten; grants have been made to the two distinguished chemical philosophers, Dr. Stenhouse and Dr. Hofmann. You are no doubt aware that Dr. Stenhouse has been engaged for a number of years in an extensive series of researches into the chemical relations subsisting among the various genera of plants; the chief aim of these inquiries has been the illustration of Botany by means of chemical science. Some of these inquiries have already appeared in your Transactions. The grant has been made to assist in defraying the very heavy expenses which are unavoidable, consisting of the cost of materials, and the salaries paid to qualified assistants.

Dr. Hofmann, in two papers published in your Transactions, has endeavoured to establish a general theory of the constitution of the organic bases, by developing the nature of the relation in which these substances stand to ammonia, and the hypothetical compound ammonium. He has pursued these inquiries very much farther; and recent experiments have shown that his former views were correct, the facts discovered perfectly harmonizing with theory. There remain still two lines of inquiry, the constitution of some of the fixed crystalline bases, and that of the alkaloids. The alkaloids are very expensive materials, and the principal object of the grant was to meet this expense. The last grants I have to notice are to Professor Stokes, Lucasian Professor of Mathematics at Cambridge, for experiments to determine the index of friction in different gases; and to Professor Hopkins, of Cambridge, for investigations on the effect of pressure on the temperature of fusion of certain substances; both inquiries are attended with great difficulties, but the results cannot fail to be of the highest interest. In each case apparatus of an expensive character was required, which has recently been completed; and some progress has been made in the preliminary experiments, but a short time will necessarily elapse before the results shall have been ascertained with sufficient certainty to fit them for communication to this Society.

I have thus given a very slight sketch of the various inquiries which have been completed, or are in progress, aided by the Government Grant. In all cases the notice has been as brief as possible; still I trust enough has been said to show that the efforts made by your Council to employ to the best advantage the means at their disposal, have not been unsuccessful.

The prospects of science are brightening in all directions: the many recent applications of science to utilitarian purposes have satisfied the masses, that science is not a mere unprofitable abstraction: the progress of knowledge dispelling error, seems to have dissipated the delusion that in science there might possibly be something ungenial to our institutions and to stable government. The feeling seems rapidly to be gaining ground, that our place, as a nation, will depend in no small degree upon our success in seizing upon the truths of science, and applying them; that in fact it is true that knowledge is power. It is therefore not improbable that unusual efforts will be made to give an impulse to scientific research of every kind, and that this Society, taking the place it has ever held, at the head of English science, will be called upon for renewed efforts, For that place your Society is more than ever fitted, as the fellowship stands much higher than it ever did before. The merits of the candidates for fellowship are tested with severity, but with strict justice, and consequently the fellowship is a real warrant of merit. I need perhaps hardly add, that at every election we see our ranks recruited by men who hold the first place of eminence in theoretical and practical science.

CHEVALIER BUNSEN,

I am most happy to have the honour of committing to your care the Copley Medal for Baron Humboldt.

The Royal Society have awarded him the highest honour which it was in their power to confer, to mark their sense of the great value of his contributions to Terrestrial Physics during a long series of years. Your Foreign Secretary has very recently drawn up for the Council an account of Baron Humboldt's researches: that has been printed, and therefore it will be unnecessary for me to go over the same ground again. It is enough to say that there is no one acquainted with the present state of magnetism, of zoology, of botany, of geology, or of physical geography, who is not aware of the extent and value of Baron Humboldt's researches. A scientific traveller of the highest order, he zealously endeavoured to advance the science of physical geography in its widest sense, regardless of toil and expense, and at great personal risk. Distant regions of the globe were in turn his habitation, and with remarkable patience, and a sagacity peculiarly his own, he sought out Nature's laws under every modification of climate. The mass of facts which he has given to the world, carefully arranged and discussed, constitute a mine of information from which Cosmogonists will long continue to draw with profit; while in its vastness it will be regarded with astonishment as the work of one man.

The Chevalier Bunsen then replied as follows:—

My Lord President,

This occasion is one of great solemnity, and to me one of almost overwhelming emotion. The most ancient and illustrious scientific institution of Europe has awarded its highest honour to the Nestor and Prince of the men of science of my country. The Council of this Society have done me the honour to propose to me to receive that Medal in the name of my illustrious friend, and he has been pleased to signify that this arrangement is gratifying to him. I may add, that I know that the King whom I have the honour to represent in this country, takes a deep interest in this occasion.

Nobody, I am sure, appreciates more fully than that great man himself, the value of the approbation of England and English science expressed in your award. It so happened that Humboldt's first immortal efforts were made in the time when England was almost entirely separated from the Continent; insomuch that he came hither not earlier than in 1818. The interest which England took in him and his works has since that time been sincere and constantly increasing. I only repeat what he has often expressed to me in his letters and by word of mouth, if I say, that he feels this increasing general interest as one of the blessings of his old age. Your scientific men knew him for half a century as one of those heroes to whom Science owes gratitude for eminent services—the geographer and the botanist, the physical and the historical philosopher, the geologist, the astronomer and the zoologist.

But the great national interest dates from a later time; and what could be more satisfactory to him, than that its organ should be, on so solemn an occasion, that Society which for more than 200 years has taken the lead in so many branches of science, a Society which counts Newton among its most active members; which has first applied Science to History and to Antiquities; which has carried the torch of scientific inquiry into the recesses of the Pyramids and the night of ancient chronology; which has made the first successful efforts in the unrolling of the Greek Papyrus rolls of Herculaneum, and which has elucidated so many important points of Roman topography connected with scientific measurements and observations: a Society which now counts amongst its members so many luminaries of science, and which possesses a President who is not only a Peer of the realm, but also a Peer in the realms of the republic of intellect and science?

I now leave my venerable friend, in order to express to you my thanks for the honour done to him, in the name of my country and of German science. For in honouring him you have honoured both: you have honoured a man to whom Germany looks up with undivided respect and with just pride.

The admirable sketch given of his literary efforts and successes by the Council of this Society, shows good cause for this respect and this pride. We admire in him, above all, the unity of thought and of purpose which pervades this long and illustrious life, and the perseverance with which he has, in his maturer age, concentrated the pursuits of his youth, on the basis of his own unrelenting studies and uninterrupted observations. As Herodotus, after he had travelled over the greatest part of the civilized portion of the ancient world, comprehended the results in his immortal History, thus Humboldt, after having observed the phænomena of nature from the Chimborazo to the frontiers of China, concentrated his thoughts and researches in his immortal *Kosmos*.

In ordinary cases, we might have been led to expect of such an all-comprehensive work, a spirited aggregate of his own thoughts. and those of others; yea, some people might have regretted that the author had not confined himself to a smaller field, to be more original. But Humboldt attempted something higher, and by the consent of mankind he has accomplished it in a very eminent degree. He thought that he could show why and how this World and the Universe itself is a *Kosmos*, a divine whole of Life and intellect, namely, by its all-pervading *eternal laws*. Law is the supreme rule of the Universe: and that Law is Wisdom, is Intellect, is Reason, whether viewed in the formation of planetary systems or in the organization of the worm; and Man is the Microcosmus and centre of this creation, contemplating, and more or less perceiving, this universal order; and science is called upon to investigate and to interpret them as far as she is able. This work, in short, is not a *farrago*, it is an original composition, part of which is illustrated by the rest, and the whole of which is greater than all its component parts together. Humboldt began the fourth and last volume when he entered his 82nd year, and his last letter, only a few days old, informs me of the progress of the printing of that volume.

My Lord, it is for these reasons that I beg to express to you the thanks of my country and of German science which you have honoured in Humboldt.

But you have honoured more in Humboldt—you have honoured *Humanity*; for Humboldt ever has been a true cosmopolite as well as a good patriot; he has ever been a friend of mankind. Every pilgrim of Science has always been welcome in his house and his mind. Almost 40 years ago he took me kindly by the hand, when

I came to Paris for my literary studies; he has done so by hundreds. How many young men in science and art has he not been the first to encourage! How many great institutions and researches has he not first conceived and helped to organize without any reference to his personal comfort or honour! And there is to me, above all, that one most striking fact for the honour of our race; it is this, that his heart as well as his mind has never ceased to become larger. It is a general observation, that arrived at a certain age, men shut themselves up against the outer world, their interest decreases, their sympathies grow fainter. Not so with Humboldt: his soul has always expanded, his interests and sympathies for every great national and human interest have always been warmer, his care for the welfare of the rising generation always more affectionate, his hopes for the future of the world always brighter. I know no one more youthful and hopeful mind than Humboldt's, and I therefore may well say in every respect, that in honouring him you have not only honoured my country and science in general, but *Humanity*.

It is for these reasons, my Lord, that I beg earnestly to thank you.

The President then proceeded as follows:—

MR. STOKES,

It is with sincere pleasure I discharge the duty which has devolved upon me of placing in your hands the Rumford Medal. Your discoveries in Physical Optics during the last few years, which have shown in so striking a manner the powers of analysis in bringing the abstruse phenomena of light within the domain of theory, have been crowned by a discovery even more important. That the refrangibility of light should be actually changed by dispersion within certain media, and that the invisible rays of the spectrum should thus be rendered visible, is a discovery as curious, perhaps as important, as any to be found in the recent history of optical science.

I am sure I but express the feeling of this meeting, when I say I confidently hope that a career commenced so brilliantly, may in its course be distinguished by other discoveries of equal value, and that you may contribute still further to extend the fame of that celebrated university where you received your education, and for which you are now making so signal a return.

MR. JOULE,

In the slight sketch I have already given of the progress of different departments of science under the aid of the Government Grant, I have noticed your labours in conjunction with the other eminent men engaged in the wide field of Molecular Physics.

The subject to which you have especially devoted your energies, the discovery of the mechanical equivalent of heat, is one which unites in itself a practical, as well as a deep scientific interest. To have carried out with great ingenuity and perseverance a series of beautiful and conclusive experiments, is an important achievement, and I am most happy it has found its reward in the Medal which I have the pleasure of presenting to you.

Mr. Huxley,

The Royal Medal for Physiology has been awarded to you for your papers 'On the Anatomy and Affinities of the Medusæ.'

In those papers you have for the first time fully developed their structure, and laid the foundation of a rational theory for their classification, demonstrating with the greatest success the mutual relations of their different groups, and their affinities to other animals.

In following out these investigations, you have availed yourself with extraordinary perseverance and intelligence, and with corresponding success, of the opportunities afforded you for the examination of these animals whilst living, by your position as surgeon to H.M.S. Rattlesnake during her surveying voyage, conducted by the late Capt. Stanley on the Coasts of Australia and New Guinea.

The results of these researches have been in part made known in the papers for which the present Medal has been awarded, and in others communicated to the Royal and other Scientific Societies. It would be difficult to give even an outline of the discoveries there made without entering into unnecessary detail, but it may be well to observe that in your second paper in the Philosophical Transactions 'On the Anatomy of Salpa and Pyrosoma,' the phenomena commonly embodied in the term "alternation of generations,' as referred to the former genus, which, from the first suggestion of Chamisso have excited so much attention, and produced so much unsatisfactory discussion, have received the most ingenious and elaborate elucidation, and have given rise to a process of reasoning, the results of which can scarcely yet be anticipated, but must bear in a very important degree upon some of the most abstruse points of what may be called transcendental physiology.

Among the list of Fellows whose death we have to deplore during the present year is that of Mr. William Tierney Clark, also a Fellow of the Society of Civil Engineers. He was the constructor of many important works in this country, such as—

1. The Thames and Medway Canal.
2. The Cast-iron Town Pier at Gravesend.
3. The Suspension Bridge at Hammersmith.
4. The Suspension Bridge at Marlow.
5. The Cast-iron Bridge over the Avon at Bath. Besides many useful works of minor importance.

He made a magnificent design for a Suspension Bridge of the River Neva at St. Petersburgh, for which he received a large Golden Medal from the late Emperor Alexander of Russia. But his last and most splendid work was the great Suspension Bridge over the Danube at Pesth, in Hungary. The many political circumstances attached to the origin of that bridge through the Count Széchenyi, the great reformer of Hungary, the subsequent dangers of destruction which the bridge escaped during the wars which desolated Hungary, and the great difficulties which attended the execution of the undertaking, independently of its importance as a work of art, have given a European celebrity to that bridge above all others of its kind.

Mr. Clark commenced his career first in Bristol and afterwards with Messrs. Darby and Co. at their celebrated iron-works at Colebrook Dale in Shropshire, where he doubtless acquired the first principles of Cast-iron Engineering, and which were afterwards more matured when he entered the service of the late Mr. Rennie in 1808, where he remained until 1811, when he was appointed Engineer to the Water-works Company at Hammersmith, in whose service he remained until the day of his death on September 22, after a long and painful illness. Of his works it may be said that they combined great elegance with good sense in the arrangement of the details.

John George Children, Esq. was born on the 18th of May, 1777, at Ferox Hall, Tunbridge. His father was the possessor of large landed property near Tunbridge, and was a Bencher of the Middle Temple, but never practised at the bar. Mr. Children's mother died a few days after his birth. His father did not marry again, but devoted himself to the care of his son, who received the rudiments of his education at the Grammar School at Tunbridge, and subsequently at Eton, on quitting which, he was entered a fellow-commoner of Queen's College, Cambridge, in 1794. His views were at this time directed to the church as his profession, but having had the misfortune to lose his wife, a granddaughter of Governor Holwell whom he had married as soon as he was of age, he accompanied some intimate friends to Lisbon, and after a residence there of some months, he returned to England, and in March 1802 sailed for North America, where a cousin to whom he was much attached had established himself. They travelled together through not only the more settled towns, but among large tracts of the then uncleared backwoods, both of the States and Canada. The change of scene had a beneficial effect on Mr. Children's spirits, but had nearly cost him his life. He was attacked by a terrible fever, and it required the most judicious treatment of his medical friends to save him. As soon as he was sufficiently recovered he returned to England, entirely restored to health by the voyage. He found his native county, Kent, busy in organising national defences, at that time the great object of attention, and he entered the West Kent Militia as one of its captains; which post he retained until 1805, when severe illness obliged him to resign.

From this period his time was principally devoted to science, to which he had been from his early youth greatly attached. Mineralogy, chemistry, and galvanism, became his favourite studies, and he soon made the acquaintance of the leading men of science. From their society he derived the highest gratification, and he lived much among them. Sir Humphry, then Mr. Davy, Mr. Hatchett, Dr. Wollaston, and many more great names of that day were among his intimate friends, and his election as a Fellow of the Royal Society in 1807, was at once the result and the cause of increasing attachment to his scientific pursuits. He had an excellent laboratory at Tunbridge, where he constructed a galvanic battery, with a small series of very large plates, of which he gave an account to the Royal

Society in November 1808; and subsequently he constructed another with much larger plates, the performance of which is fully detailed in a second paper read to the Society in June 1815. Both these papers are printed in the Philosophical Transactions.

Between the date of these papers he made a long journey in Spain, and visited the quicksilver mines of Almaden, with which Englishmen were at that time very imperfectly acquainted. On his return to England in 1809 he married the eldest daughter of George Furlong Wise, Esq., of Woolston in Devonshire, but he again experienced the heaviest of all domestic calamities by losing her within eight months of their marriage. After her death in 1810, he continued to reside chiefly with his father at Tunbridge until the year 1816, when, in consequence of the failure of the Tunbridge Bank, in which his father was a partner, his prospects in life were wholly altered, and he found it necessary to seek some remunerative employment that might enable him to contribute to the comfort of his revered and now aged parent. He succeeded, through the kindness of the late Marquis of Camden, in obtaining the situation of one of the librarians of the British Museum, in the department of Antiquities. He still retained his love for chemistry, and a little before his appointment to the Museum, he had warmly espoused the cause of his friend Sir H. Davy, in a controversy respecting the safety lamp; a paper relating to which will be found in the Philosophical Magazine for 1816.

After his father's death Mr. Children married the widow of the Rev. Johnson Towers, and removed from Chelsea to the British Museum, in which establishment he had an official residence. It is worthy of mention, that after he had been for some years an officer of the Museum, his post was changed without his own solicitation from the Department of Antiquities to that of Natural History.

In 1826 Mr. Children was elected Secretary of the Royal Society in the place of Mr. Brande. He resigned in 1827, but was re-elected in 1830, and remained in office until 1837, when his delicate health obliged him to relinquish it. This honourable position was rendered particularly agreeable to him by the regard and kindness of his colleagues, and of the Presidents under whom he acted; and his zeal for the interests of the Society is commemorated by the unanimous thanks of the Society having been given to him in 1835, for "the zeal and ability which he uniformly displayed, and the many valuable services he rendered in promoting the objects of the Society."

On his retirement from office in Nov. 1837, the President, then the Duke of Sussex, in his Anniversary Address, alluded in a very marked and complimentary manner to Mr. Children's services as Secretary, and lamented that the Society would no longer have the benefit of those services.

At this period of his life Mr. Children was a member of most of the scientific bodies of Great Britain, and of some foreign societies, and he was very instrumental in the formation of the present Entomological Society, and became its first president.

He published two chemical works, one a translation of Thenard's

Essay on Chemical Analysis,' 8vo, 1819; the other of 'Berzelius' Treatise on the Use of the Blow-pipe,' with additional experiments and notes of his own, 8vo, 1822. He was one of the early editors of the Zoological Journal, and a contributor to other learned works. In short, his occupations were many and varied, but they were congenial to his active mind. His knowledge of Chemistry became a source of profit to him in the year 1824, when the mining companies of South America were desirous of finding some means by which silver might be extracted from its ores without amalgamation. Mr. Children having directed his attention to the subject, succeeded in discovering and perfecting a process by which the silver might be obtained without the use of mercury, and at a less cost. The right of using this process was purchased by several mining companies, and a considerable sum was the fruit of it.

Mr. Children remained at the British Museum until the death of his wife in 1839, when he sent his resignation to the trustees. He then went to reside with his daughter at Halstead Place, Kent, who had married the only surviving son of the late John Atkins, Esq.

Although retiring from active life, he was nevertheless constantly employed in scientific researches, and he took up the science of Astronomy with the energy and zeal of a young man. Thus passed the latter years of his life, until with unimpaired faculties the powers of nature gently gave way after the brief illness of a week, and he died on the 1st of January 1852, without the slightest apparent suffering.

Thomas F. Colby, LL.D., Major-General in the Army, and one of the most distinguished scientific officers of the corps of Royal Engineers, was born at Rochester on the 29th September, 1784, and was the eldest son of Major Thomas Colby of the Royal Marines, an officer who was severely wounded at Lord Howe's battle of the first of June. His grandfather was Mr. Colby of Rhoseygilwin in South Wales, a gentleman of considerable landed property. His maternal uncle was General Hadden, Surveyor-General of the Ordnance.

The life of General Colby was eminently scientific, and its history will be hereafter embodied in that of the Ordnance Survey. He was however not less distinguished for the genuine simplicity of his character, his urbanity, his frank but unostentatious hospitality, and his private and domestic virtues, than for his scientific attainments, and the ability and energy he displayed in the performance of his public duties.

He was educated at Northfleet School under Dr. Crackell; thence admitted a cadet in the Royal Military Academy; and in December 1801, at the age of little more than seventeen, was promoted to a second lieutenancy in the Royal Engineers. He was early associated with Lieut.-Colonel Mudge (afterwards General Mudge) in the Trigonometrical Survey of Great Britain, that officer having become acquainted with his mathematical acquirements and tastes. In 1811, was published the third volume of the Survey, which contains "an account of the Trigonometrical Survey, extending over the years 1800 to 1809, by Lieutenant-Colonel William Mudge of the Royal Artillery, F.R.S., and Captain Thomas Colby of the Royal Engineers." This association of his name with that of the Director of the Survey, of itself shows the active part he thus early took in the operations of that important undertaking, and the estimation in which his services were then held. He was elected a Fellow of the Royal Society in 1820, and in 1821 obtained the brevet rank of Major.

In 1824 Major Colby commenced the great work of his life, the Ordnance Survey of Ireland. In that year a Committee of the House of Commons reported on the necessity of a General Survey of Ireland, and recommended that it should be undertaken by the Ordnance. The Duke of Wellington was Master-General, and having assumed the responsibility of such a task, he confided its execution to Major Colby, who had then for some years conducted the Survey of Great Britain. The survey required for Ireland was very different in its nature and objects from that of Great Britain: it was expected to be laid down and published on a scale of 6 inches to a mile, and was designed to form the basis of a land valuation, and of a revised system of local taxation. For a work of such minute detail and such close precision, as these objects rendered necessary, Major Colby was obliged to create the means of execution and to devise a plan of operations which should enable him to employ numbers as well as skill. Taking for his model the celebrated 'Down' Survey of Sir William Petty (subsequently so well described by Major Larcom, R.E), and applying the whole energies of his mind to the subject, he devised that beautiful system of disciplined and co-operative labour which enabled him to apply to the work all the resources of science, and yet to employ upon it both private soldiers and peasants. The Royal Sappers and Miners supplied the highly-trained soldiers who formed a nucleus for the work, and the quick and intelligent peasantry of Ireland produced numbers of candidates sufficiently instructed to serve as materials for its perfect construction. To those who saw the work in its infancy, when everything had to be created, and remained to witness it as a vast and beautiful machine, combining into harmonious action the labours of about forty observers and many hundreds of surveyors and draughtsmen, and producing annually a perfected survey of several millions of acres, the success of General Colby must appear most complete and most wonderful.

To secure the undisturbed and uniform movement of so complicated a machine, it was necessary to form an equally perfect office establishment, and this was done in the Survey Office at Mountjoy, in the Phœnix Park, Dublin, the arrangements of which (including those of the Engraving Establishment) were carried by Colonel Colby to the utmost perfection, under the personal superintendence of Captain (now Major) Larcom; and the final excellence of that establishment may be now studied in that of the Map Office at Southampton, which is, in fact, no more than its reflected image.

Having thus grasped in his mind the requirements of the survey in its mere practical character, Major Colby felt, as a man of science, that so great a national work ought not to fall short of the excellence of Continental works in any of its operations, and that some scientific advance should be made in the mode of measuring its first base line. With the beautiful differential rods of the French philosophers he was not perfectly satisfied, nor would he adopt the mode, proposed by the late Captain Drummond, of measuring with broad bands, or ribands formed of mica; but feeling a preference for the principle of compensation, he gave it a new application, by inventing those admirable compensation bars, which stamped on the Irish Survey a character of novelty, and inseparably connected the name of their author with the history of geodetic science. It is not to be supposed that so great a work could have been carried on successfully without the cooperation of many most able and zealous officers; but when it is considered that their efforts were all directed and regulated on the system planned by General Colby, it must be felt that the Irish Survey, in its beginning and in its end, was eminently his own work.

Were this narrative now to end, it would fail to do full justice to the comprehensive mind of General Colby. When asked by Sir Henry Hardinge, then Clerk of the Ordnance, to state the advantages of a survey, he did not content himself by describing its ordinary usefulness, but nobly represented it as the proper basis for geological, statistical and antiquarian surveys. These views were acted upon at the commencement of the Survey, and to General Colby must therefore be ascribed the merit of having first originated a national Geological Survey, and, connected with it, a museum of Economic Geology. He did indeed more, as his scheme comprised natural history and antiquities; and the museum at Mountjoy contained not only a most valuable collection of minerals and fossils, but also an equally important one of the plants and animals of Ireland. It is true, that subsequently General Colby shrank from that responsibility which at first had seemed so light to him; that the Ordnance abandoned these collateral works; and that the Geological Survey passed into the hands of the Woods and Forests, there to acquire a full development under the able guidance of Sir Henry De la Beche; but let us recognize in the Memoir of Londonderry, published in 1835,—in the Report of the Geology of Londonderry and Tyrone, by Captain now Lieut.-Col. Portlock, R.E., published in 1843,—and in the Statistical Papers of the Census Commission drawn up by Major Larcom, and founded on the Statistical Section of the Memoir of Londonderry, to which that officer had so largely contributed, proofs that the scheme proposed by General Colby in 1824, would, if it had been followed up, have led to the publication of a national work, which, both in the grandeur of its conception and the importance of its results, would have been unrivalled by any such national work in Europe.

In 1825 Major Colby became Lieutenant-Colonel; in 1837 Colonel; and in 1846 Major-General. It is greatly to be regretted that his attainment of the last-named rank should have required that his connexion with the great work he had so long and so ably directed, and with which his name will ever be most honourably associated, should cease.

General Colby was a Fellow of the Royal Society of Edinburgh; an Honorary Member of the Royal Irish Academy; a Fellow of the Geological, the Royal Astronomical, of the Geographical and Statistical Societies, and was also connected with the Society of Arts, either as Member or Proprietor, the Institution of Civil Engineers, and the Royal Institution. He received the degree of LL.D from the University of Aberdeen, and was a Knight of Denmark.

He died at Liverpool on the 9th of October 1852, in the sixty-ninth year of his age.

John Dalrymple was born at Norwich in the year 1804, and was the eldest son of the late William Dalrymple of that city, who although restricted to a provincial sphere, obtained a high reputation, and was known throughout Europe as one of the most successful operating surgeons in this country. The subject of our memoir entered the medical profession as pupil at the Norwich and Norfolk Hospital under his father, who was Surgeon to that Institution. He subsequently removed to the Borough Hospital, the schools of which were at that time united; and after completing his studies there, he became a member of the College of Surgeons in 1827, after which he commenced practice in the city. Mr. Dalrymple paid especial attention to the practice of Ophthalmic Surgery, and in the year 1832 was elected Assistant-Surgeon to the Royal Ophthalmic Hospital, where he contributed greatly, by his talent and high professional character, to raise that excellent charity to its present high standing in public estimation. During the period of his residence in the city he struggled against the disadvantage of almost continual ill health, to lay the foundation of a profound knowledge of the anatomy and diseases of that organ to which he had determined to devote his principal attention, and hence, on his removal to the west end of the town in 1839, he was well prepared for that great professional success which shortly after flowed in upon him; and from that period until his death, his onward course was only interrupted by the too frequent attacks of disease and his consequent general enfeebled health.

In 1843 Mr. Dalrymple was elected full surgeon to the Ophthalmic Hospital, and in the same year became a Fellow of the Royal College of Surgeons. In 1849 he was compelled by the state of his health to resign his appointment at the Ophthalmic Hospital, but the Governors of this charity, anxious to retain at least his occasional services, marked their sense of his high character and merits by appointing him Consulting Surgeon to the Institution.

Whilst, however, he was earnestly engaged in the honourable pursuit of professional fame, his hours of relaxation from that primary object had been constantly devoted to the pursuits of science, and we have had few more accurate and persevering investigators in microscopic anatomy and physiology than he was. To the most acute observation and a rare dexterity of manipulation he added the happiest power of delineating the objects of his research, as an accomplished and accurate artist. In the year 1849, he presented to the Royal Society a paper on one of the most interesting subjects connected with the reproduction of animals, the discovery of the true male of the Rotifera, showing that this sex exists as a separate being, consisting, however, exclusively of the male organ, which is locomotive, but possesses no distinct alimentary apparatus. The animal which furnished the subject of Mr. Dalrymple's discovery was a species of Notommata, but since that time Mr. Gosse and other naturalists have observed the same remarkable fact in several other forms. This paper was published in the Philosophical Transactions for 1849.

Mr. Dalrymple did not however confine his scientific pursuits to the sciences of organic nature. He was one of the most strenuous promoters of that admirable and useful Institution, the Royal College of Chemistry, of which science he was a successful cultivator.

In 1850 Mr. Dalrymple was elected a Fellow of the Royal Society, and in 1851 was placed on the Council of the Royal College of Surgeons.

His great work on the pathology of the human eye, which had occupied his attention for many years, was only just completed when his useful and honourable career was prematurely cut short at the age of 48. Of this production it is no exaggeration to say that it is scarcely paralleled by any work on morbid anatomy which has ever appeared in this country. The masterly artistic beauty and accuracy of the illustrations are only equalled by the conciseness and practical importance of the descriptions.

Mr. Dalrymple was greatly endeared to his professional brethren and friends by the gentleness of his manners, the kindness and simplicity of his heart, and the nicest sense of professional honour.

Charles Morgan Elliot was born at Pimlico Lodge, Westminster, on the 27th of April, 1815; the ninth of fifteen children of the late John Elliot, Esq., F.R.S., his mother being the youngest daughter of the well-known Dr. Lettsom. Five of his brothers have been in the service of the East India Company; one of them, Sir Henry Elliot, K.C.B., is at this time Foreign Secretary to the Government of India.

Before ten years of age Charles was sent to Eton, which he left in less than three years, to prepare for Addiscombe, where he entered as cadet in 1830. At this Military Seminary he distinguished himself so much as to be appointed to the Engineers; and after passing the usual time at Chatham, he sailed for Madras in June 1833.

Early in 1838 his health required him to return to England; and during the two years he passed at home, he devoted himself assiduously to science; and was appointed Superintendent of the Magnetic Observatory at Singapore, at the same time that his brother officers Boileau and Ludlow were nominated to those of Simla and Madras.

He arrived at Singapore in 1840; and after remaining there five years, laboriously employed in his scientific duties, he commenced in January 1846, the Magnetic Survey of the Eastern Archipelago. His observations were taken at sixteen different stations:—four in the islands adjacent to Singapore; one in Borneo; one in Java; two in Sumatra; one in the island of Mindanão; one in Celebes; one at the Cocos or Keeling Islands; one at Penang, and one in its immediate vicinity; one at Nicobar in the Bay of Bengal; one at Moulmein, and one at Madras. His zeal and energy will be appreciated, when we reflect that these fixed stations were spread over the immense area of 28° of latitude and 45° of longitude, and were carried on, under great privations, at great personal risk, and sometimes in places where no European had ever set foot before. In Borneo his fixed station was at Sarawak, near the house of his friend Rajah Brooke. Having completed his Survey at Madras in October 1849, he applied for furlough, and arrived in England at Christmas 1849, for the sole purpose of publishing his Observations —a work of great labour, which occupied him incessantly for nearly two years; they were printed in the Philosophical Transactions for 1851. Last December he returned to India in the hope of being able to carry through the magnificent undertaking of the Magnetic Survey of the whole Peninsula. In May last he left Madras, intending to go round by the coast through Masulipatam to Hydrabad. On his journey he was tempted to visit some extensive works carried on by the Government at Rajamundy, near the Godavery river, where he was seized with fever, and expired at Masulipatam, after a few days' illness, on the 4th of August last, at the early age of thirty-seven.

He was universally admired for the manliness of his character and beloved for his amiable social qualities.

He was elected a Fellow of the Royal Society in June 1850: the entire disinterestedness, self-sacrificing exposure in climates and seasons most unfriendly to life, and the well-directed ardour and remarkable ability (giving yet higher promise for the future had his life been prolonged) which marked his short but highly active scientific career, claim for his memory an honourable place in our records, and combined with the frankness, loyalty and sweetness of his character and temper, have endeared it in a peculiar manner to those amongst us who had most opportunity of appreciating him.

Gideon Algernon Mantell, LL.D., F.G.S. and F.L.S., was born at Lewes in 1790. His father was a shoemaker in the enjoyment, according to the statement of Mr. Thomas Mantell of Lewes, a brother of the subject of this memoir, of a large business, having as many as twenty-three men in his employ at one time. Dr. Mantell received his first instruction at a dame-school at Lewes, from which he was transferred to Mr. Button's establishment, also at Lewes, and subsequently was sent to a school in Wiltshire, conducted by a clergyman.

His father then articled him to Mr. James Moore, a surgeon and apothecary, paying a premium of two hundred guineas. Young

Mantell was fortunate in gaining the esteem of his master, who, after his pupil had 'walked the hospitals,' and what was then a novelty in country practice, become a licentiate of Apothecaries' Hall, admitted him into partnership, and he forthwith commenced practice, in which he was eminently successful. He made midwifery an especial study, and contributed several papers on that branch of medical science, and on the use of ergot of rye, to the 'Lancet,' and also other articles on various branches of medicine.

It is recorded greatly to his honour, and as a proof of his early attention to science, that with the assistance of his brother, the late Joshua Mantell, who was a surgeon at Newick, the life of a woman condemned to death for the murder of her husband by arsenic was saved, Dr. Mantell having distinctly proved that the tests used, and which were said to show the presence of this mineral poison, had entirely and chemically failed. This led to his publication, in 1827, of his 'Observations on the Medical Evidence necessary to prove the presence of Arsenic in the Human Body, in cases of supposed poisoning by that mineral.'

It was while Dr. Mantell was at Mr. Button's school that he first evinced a strong disposition for the study of natural history, and upon commencing practice at Lewes, he devoted as many hours as he could from his very arduous professional labours to the investigation of organic remains, first in the Chalk and next in the Tilgate formations, which were at that period comparatively new ground.

He was greatly encouraged in these researches by the late Mr. Davies Gilbert, and he was largely assisted by the zeal and knowledge of Mr. Stewart Warren Lee, who was his intimate friend and companion in all his early discoveries.

For nine years he devoted himself to the prosecution of his researches into the chalk formation, and in laying the foundation of the collection now in the British Museum. In May 1822 he published by subscription the result of his labours in a quarto volume, entitled 'The Fossils of the South Downs, or Illustrations of the Geology of Sussex.' The work was dedicated to Mr. Davies Gilbert.

In 1825 he communicated his first paper to the Royal Society, entitled 'Notice on the Iguanadon, a newly-discovered fossil reptile from the Sandstone of Tilgate Forest in Sussex.' This paper was printed in the Philosophical Transactions, and, at the recommendation of Mr. Davies Gilbert, its author was elected a Fellow of the Royal Society the year of its publication.

We now find him eagerly pursuing his favourite study of Geology. In 1826 he published his 'Illustrations of the Geology of Sussex,' with figures and descriptions of the fossils of Tilgate Forest, which include several discoveries that will always be associated with his name. He also contributed the Natural History of the district to Horsfield's 'History of Lewes,' and several articles on geology to different periodicals.

All this time he spared neither trouble nor money in collecting geological specimens for his museum, which soon became so famous, that parties from Brighton were in the habit of going to see it.

Indeed it is as a working geologist, as a discoverer, as a collector, and as one who in the infancy of geological science placed before the world the means by which others could write a thesis or found a system, that Dr. Mantell's merits were best displayed, and will be honestly acknowledged.

At the instigation of the Earl of Egremont, who was a warm friend of Dr. Mantell's, and evinced his admiration of his scientific labours by contributing the sum of £1000 to aid in the formation of his museum, the latter as well as Dr. Mantell's private establishment was removed to Brighton. This change was effected in 1835, but from some unexpected causes the high professional success which attended Dr. Mantell in his native town did not follow him to his new home.

In 1838 his patron, the Earl, died, and an attempt to keep the museum in Sussex, by the aid of local subscriptions, having failed, Dr. Mantell disposed of his collection to the British Museum for the sum of £5000, and shortly after he went to reside at Clapham, from whence he finally removed to Chester Square.

His professional practice was not increased by these removals, and was additionally injured by his great devotion to science and archæology; for he was a keen follower of the latter, and opened many tumuli near his native town. He also communicated a paper to the British Archæological Association 'On the connexion between Geology and Archæology.'

His removal to London did not damp his ardour for collecting remarkable geological specimens, and those who have had the gratification of attending the brilliant soirées of the late Marquis of Northampton, and those of the present distinguished President of the Royal Society, will remember how largely the subject of this memoir contributed, by the exhibition of numerous objects in geology and natural history, to the scientific enjoyment and instruction of the evening.

Indeed, although he was naturally proud of his acquisitions, which were often of a most remarkable character, he did not hoard them up, but was always ready and willing to allow geologists to use them for scientific purposes.

Among his latest contributions to palæontology, which science his labours have tended greatly to advance, may be particularly mentioned his paper on the *Dinornis*, an extinct bird of New Zealand, the bones of which extraordinary creature were sent to him by his son.

It is to him we are also indebted for the only specimen of the *Notornis*, also from New Zealand.

Dr. Mantell's works and writings are extremely numerous. He was a frequent contributor to the Transactions of the Geological Society, on whose Council he served for many years. He also acted as Hon. Secretary in 1841–42, and was Vice-President in 1848 and 1849. His communications to the Royal Society are as follows:—

Notice on the Iguanodon, a newly-discovered fossil reptile from the Sandstone of Tilgate Forest in Sussex. Read Feb. 10, 1825.

Memoir on a portion of the Lower Jaw of the Iguanodon, and on the remains of the Hylæosaurus and other Saurians, discovered in the Strata of Tilgate Forest in Sussex. Read Feb. 18, 1841.

On the Fossil remains of Turtles, discovered in the Chalk Formation of the South-east of England. Read May 20, 1841.

On the Fossil remains of the soft parts of Foraminifera, discovered in the Chalk and Flint of the South-east of England. Read June 18, 1846.

Observations on some Belemnites and other Fossil remains of Cephalopoda, discovered by Mr. R. N. Mantell, C.E., in the Oxford Clay near Trowbridge in Wiltshire. Read March 23, 1848.

On the Structure of the Jaws and Teeth of the Iguanodon. Read May 25, 1848.

Additional Observations on the Osteology of the Iguanodon and Hylæosaurus. Read March 8, 1849.

On a Dorsal dermal Spine of the Hylæosaurus, recently discovered in the Strata of Tilgate Forest. Read June 13, 1850.

Supplementary Observations on the Structure of the Belemnite and Belemnoteuthis. Read Feb. 14, 1850.

On the Pelorosaurus; an undescribed gigantic terrestrial reptile whose remains are associated with those of the Iguanodon and other Saurians in the Strata of Tilgate Forest. Read Feb. 14, 1850.

All these papers are printed in the Transactions. For those on the Iguanodon he received a Royal Medal in 1849.

The Bibliographia Zoologiæ et Geologiæ of the Ray Society contains the titles of sixty-seven books and essays from the pen of Dr. Mantell.

Among the more important of his works on Geology are the following:—

The Wonders of Geology, first published in 1838. It has passed through six editions, and has been translated into German.

The Geology of the South-east of England. 1838.

The Medals of Creation, 2 vols. 8vo, 1844. A recent edition of this instructive work has been published.

Thoughts on a Pebble. Seven Editions.

A Geological Excursion round the Isle of Wight, and along the adjacent Coast of Dorsetshire.

Petrifications and their Teaching. This was one of the last of the author's works, and was intended as an introduction to the organic remains in the British Museum.

As a lecturer as well as author, Dr. Mantell was eminently successful. His style was fluent, and he possessed the art of attracting his audience by an exhaustless catalogue of wonders.

No one who has enjoyed the advantage of hearing him can forget the singular ability, the felicitous illustrations, and the energetic eloquence that characterized all his discourses.

It is unhappily not the fate generally of the ardent pursuer of science, who is at the same time obliged to follow a laborious profession, to enjoy the *mens sana in corpore sano*. Dr. Mantell's life formed no exception to this rule, for his vigorous intellect was accompanied by an amount of bodily suffering which darkened many years of his life, and was eventually the indirect cause of his death.

This suffering proceeded from a spinal affection caused by an accident; but it is an additional proof of Dr. Mantell's great fortitude, that frequently at the cost of much self-denial, and the pressure of severe bodily pain, he made his appearance before a scientific society, or in a lecture-room, and it was under such painful circumstances that he lectured only a few hours before his decease.

This melancholy event was occasioned by his having prescribed opium for himself to relieve the agony which he was enduring, and which, although not sufficiently large to have produced fatal effects on a full stomach, proved in his exhausted condition so powerful as to induce death.

George Richardson Porter, Esq. was born on the 29th of June, 1790; he was brought up for mercantile pursuits, and commenced life as a wine-merchant in London. Being, however, unsuccessful in business, he turned his attention to literature, for which he was well qualified by his previous studies and pursuits; as it was his habit from earliest youth to compose (though not publish) papers on any subject which interested him. His first published work was the 'History of the Sugar-Cane' (in 1830). This book, together with other circumstances, led to an introduction to Mr. Charles Knight, who immediately gave him literary occupation, and the acquaintance turned out to be highly advantageous to the author.

Mr. Porter wrote several papers for the Companion to the Almanac, &c., and was for some years a constant and valuable contributor to the Penny Cyclopædia. But Mr. Knight's just appreciation of his abilities produced to him much greater and more lasting advantages than casual employment for his pen. Mr. Knight having been asked by the late Lord Auckland, when his Lordship was President of the Board of Trade, to undertake the task of arranging and digesting for the Board the mass of information contained in Official Books and Parliamentary Returns, Mr. Knight felt that he could not enter upon the work without injuring his publishing business, and he declined it, but he at the same time strongly recommended Mr. Porter to Lord Auckland as a person highly qualified for the undertaking.

This was in the year 1832, at which period the department of statistics at the Board of Trade was first organized as an experiment; but at the end of two years the utility of the department was so evident that it was definitely established, and Mr. Porter was placed at its head as Superintendent. It was here that he had access to those stores of information which his peculiarly statistical turn of mind enabled him to calculate and arrange with so beneficial an effect for public use, and few official volumes have tended more to introduce important commercial reforms than that which emanated yearly from the Statistical Department of the Board of Trade under the laborious and careful editorship of Mr. Porter.

In 1840 he was appointed senior member of the Railway Department of the Board of Trade. In the transaction of the arduous duties of that department, which, in 1845, when railway speculation was at its height, increased to an overwhelming extent, Mr. Porter's services were as valuable as they were energetic, and were thoroughly appreciated by Lord Dalhousie, who then so efficiently presided over the department. On the retirement of Mr. M^{c}Gregor in 1847, Mr. Porter was appointed one of the Joint Secretaries to the Board of Trade. This promotion added greatly to Mr. Porter's labours.

And yet, though an incessant worker in his office, he afforded another exemplification that the busiest man has often the most leisure, for it was while occupied by official duties, whose magnitude would have alarmed many men, that he found time, without in any way neglecting those duties, to write his 'Progress of the Nation,' which has passed through several editions, and which will be of incalculable value to future political economists. The amount of information in this very remarkable work, and the manner in which it is presented to the reader, entitles Mr. Porter to take the highest rank in the science of political economy.

Mr. Porter was the author of various other works in Statistics and Political Economy, and he wrote the 15th and last Section of the Admiralty Manual of Scientific Inquiry.

His contributions to the Statistical Section of the British Association for the Advancement of Science were very numerous and valuable, and he made frequent communications to the Statistical Society, which are printed in the Society's Journal.

Mr. Porter was one of the earliest promoters of that Society, and was chosen its Treasurer in the place of Mr. Hallam, who resigned that office in 1841.

His scientific labours admitted him to the Fellowship of the Royal Society, into which he was elected in 1838, and he was on the Council during the years 1847 and 1848. He was also a Corresponding Member of the Institute of France.

Mr. Porter's integrity, his elegant and varied accomplishments, and his amiable disposition, rendered him a cherished ornament of a large social circle, and he was always ready and willing to do all in his power to assist in any humane undertaking.

A remarkable instance of this disposition was communicated by Mr. Porter to the writer of this memoir, and which, as being connected with Sir Joseph Banks, when President of the Royal Society, is worthy of mention.

In consequence of the seizure by England of the Danish Fleet in the early part of this century, Iceland was afflicted by grievous famine, so that almost the only resource of the inhabitants for obtaining food was the sea-weed left by the receding tides. Under these circumstances a merchant from Copenhagen arrived in England with introductions to the mercantile house with which Mr. Porter was connected. His object was to obtain from the British Government licenses for the protection of Danish ships which should be employed in conveying provisions to Iceland; but his applications to the Board of Trade were, in the first instance, quite unsuccessful. As soon as Mr. Porter became aware of these facts, he remembered that Sir Joseph Banks, who had visited Iceland in 1772, was an Honorary

Member of the Board of Trade, and he determined to enlist, if possible, his sympathy in the cause of the unfortunate Icelanders. He wrote at length to Sir Joseph, and received an immediate answer, with the assurance that he had succeeded in securing his most zealous co-operation. On the same day that he received Mr. Porter's communication, Sir Joseph Banks went to the Board of Trade, and though at that period he was suffering greatly from bodily infirmity, he did not cease to employ his high interest, until, assisted by Mr. Porter, he had obtained the necessary licenses, which were immediately transmitted to Copenhagen.

Such conduct is equally honourable to the celebrated Baronet who so long filled the office of President of the Royal Society, and to the subject of this memoir.

It is to be feared that Mr. Porter's excessive anxiety to fulfil his arduous official duties led him to sacrifice his health when it needed repose and relaxation. His sedentary life proved the precursor of disease, which undermined his constitution, and after a short illness at Tunbridge Wells, to which place he had gone for his vacation, he died on the 3rd of September last. Mr. Porter was married to Sarah, daughter of Abraham Ricardo, Esq., and sister of Mr. David Ricardo.

Apart from his high private character, which was marked by a simple and unselfish integrity, which made him respected and loved by all within his influence, Mr. Porter will be long remembered as having a very remarkable power of quickly acquiring information on any given subject and making it completely his own; not merely compiling, but separating all the facts that were valuable out of the accumulated mass, and exhibiting them in a clear and succinct manner. This faculty also enabled him to condense an enormous amount of information in tabular forms.

Mr. Porter was a public servant of rare assiduity and zeal, and one whose qualifications for his important office were of the very highest order. The range of his commercial, statistical and political economy knowledge was of vast extent, and the readiness and precision with which he communicated it were extraordinary.

The Rev. JOHN WARREN, A.M. was born at the Deanery, at Bangor, in October 1796. He was the son of the Very Rev. John Warren, Dean of Bangor. He was educated at Westminster School and at Jesus College, Cambridge, of which he was Fellow and Tutor. In 1818, when he took the Degree of A.B., he was Fifth Wrangler. In 1825 and 1826 he served the office of Moderator and Examiner. He married his cousin Caroline Elizabeth, daughter of Lieut.-Col. Richard Warren. In 1830 he was elected a Fellow of the Royal Society. His death occurred at Bangor on the 16th of August, 1852.

In the year 1828 Mr. Warren published at Cambridge 'A Treatise on the Geometrical Representation of the Square Roots of Negative Quantities,' a subject which had previously attracted the attention of

Wallis* and of Heinrich Kühn†, Professor at Dantzig. The researches of these writers upon the geometrical representation of imaginary quantities were not known to Mr. Warren. A paper by M. Buée, containing some partially-developed views on the meaning and application of algebraic signs, was printed in the Philosophical Transactions for 1806, and a work by M. Mourey on the true Theory of Negative and Imaginary Quantities appeared at Paris in 1828. The former was unknown to Mr. Warren till his Treatise was in the press, and the latter was not seen by him before December 1828. It cannot therefore be said that he was indebted for his views to preceding writers; in fact, the work carries with it evident marks of originality, and has received honourable mention as well from Continental as from English mathematicians, who have since written on the same subject. The names of Buée, Warren, and Mourey are generally associated as having taken the lead in a department of mathematics, which in the present day‡ has received remarkable elucidations, developments and accessions at the hands of Gauss, Sir W. R. Hamilton, Professors Peacock, the late D. F. Gregory, De Morgan, C. Graves, and others.

The title of Mr. Warren's Treatise hardly conveys an exact idea of its main object. He proposes to represent every kind of quantity geometrically by the intervention of symbolical expressions, which involve the square roots of negative quantities, and designate lines in position as well as magnitude. After laying down definitions of addition, subtraction, multiplication, division, involution and evolution in the sense in which these operations must be taken when applied to quantity so represented, he proceeds to show the coincidence of the symbolical results obtained from such definitions with the ordinary results of arithmetical and symbolical algebra. He was strongly convinced of the superiority of geometry, as a means of demonstration, above the use of mere symbols of quantity, and entertained the opinion that the obscurity attaching to the proofs of some of the fundamental rules of algebraic and analytical operations, might be removed by adopting a geometrical representation of quantity, such as that proposed in his Treatise.

On Feb. 19, 1829, a paper by Mr. Warren, entitled "Consideration of the objections raised against the geometrical representation of the square roots of negative quantities," was read before the Royal

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* 'Treatise of Algebra,' chapters lxvii.–lxix. fol. Oxford, 1685, cited by Ben. Gompertz, 'The Principles and Application of Imaginary Quantities,' book ii. 4to. London, 1818.

† *Commercium Mathematico-Petropolitanum*, anno 1736. *Meditationes de Quantitatibus Imaginariis construendis, et Radicibus Imaginariis exhibendis*, in *Nov. Comment. Acad. Scient. Imper. Petrop.* pp. 170–223, ad annos 1750 et 1751. Petrop. 1753.

‡ See George Peacock, 'Report on the recent Progress and present State of certain Branches of Analysis,' in 'Reports of the British Association for the Advancement of Science,' vol. iii. pp. 228–30. An account of several recent works upon this subject may be found in Wilhelm Matzka, *Versuch einer richtigen Lehre von der Realität der Vorgeblich imaginären Grossen der Algebra*, §§ 132–139. 4to Prag, 1850.

Society, and is printed in the Philosophical Transactions of that year. This was followed on June 4, 1829, by another paper, "On the geometrical representation of the powers of quantities, whose indices involve the square roots of negative quantities." Having previously confined his attention to representing geometrically quantities of the form $a+b\sqrt{-1}$, in the last memoir he succeeded in representing geometrically quantities of that form affected with an index of the same form $(a+b\sqrt{-1}\;m+n\sqrt{-1})$, and at the close of it stated that "it will be manifest from what has been demonstrated, that all algebraic quantity may be geometrically represented, both in length and direction, by lines drawn in a given plane from a given point." This extension of the subject Mourey had hinted at, but had not then published.

Mr. Warren's mathematical productions are limited to those above mentioned, with the exception of a short communication to the Cambridge Philosophical Society on a correction of Mourey's proof that every equation has as many roots as it has dimensions, which may be regarded as an instance of the scrupulousness with which he was accustomed to seek for exactness in mathematical demonstration. In the latter part of his life, when his time was chiefly taken up with ecclesiastical duties, he did not wholly lay aside mathematics, but with friends would converse largely on favourite topics, showing remarkable power in carrying on a mathematical demonstration *vivâ voce.* He continued to entertain a high estimate of the capabilities of the geometrical representation of impossible quantities, which he made some attempts to extend to space of three dimensions, and he even contemplated the possibility of applying it to the solution of the problem of three bodies. On these questions, however, he has left nothing in writing.

Mr. Warren was Chancellor of the Diocese of Bangor, and was the rector of Graveley in Cambridgeshire, and Caldecott in Huntingdonshire. He was also owner of the advowson of Caldecott, which, as well as an adjoining parish, was without a resident clergyman. In order to remedy this evil, he was desirous that the union of the two parishes might be effected. With this view he sold the advowson of Caldecott to the patron of the other parish, and gave up the purchase-money for the purpose of building a parsonage-house for the united parishes. It is not intended in this sketch to enter into details with respect to Mr. Warren's private history, but the above incident in his life is deemed worthy of record as being characteristic of the man. He was a clergyman of unaffected piety, simple habits and generous disposition.

On the motion of Sir R. H. Inglis, Bart., the best thanks of the Society were given to the President for his excellent Address, and his Lordship was requested to permit the same to be printed.

The Statutes relating to the election of Officers and Council having been read, and Sir C. Lemon, Bart., and Mr. W. Tooke having, with the consent of the Society, been nominated Scrutators, the votes of the Fellows present were collected.

The following Noblemen and Gentlemen were reported duly elected Officers and Council for the ensuing year:—

President—The Earl of Rosse, K.P., M.A.

Treasurer—Colonel Edward Sabine, R.A.

Secretaries— { Samuel Hunter Christie, Esq., M.A.
Thomas Bell, Esq.

Foreign Secretary—Captain W. H. Smyth, R.N.

Other Members of the Council.—Rev. James Booth, LL.D.; Benjamin Collins Brodie, Esq.; Charles Brooke, Esq.; Lord Enniskillen, D.C.L.; J. P. Gassiot, Esq.; Thomas Graham, Esq., M.A.; Joseph Dalton Hooker, M.D.; William Hopkins, Esq., M.A.; Henry Bence Jones, M.D.; George Newport, Esq.; Lieut.-Colonel Portlock, R.E.; J. M. Rendel, Esq.; William Sharpey, M.D.; William Spence, Esq.; Nathaniel Wallich, M.D.; Lord Wrottesley.

Statement of the Receipts and Payments of the Royal Society between Dec. 1, 1851, *and Nov.* 30, 1852.

RECEIPTS.

				£	*s.*	*d.*
Balance in the hands of the Treasurer at the last Audit ..				147	8	6
Weekly Contributions, at one shilling				39	0	0
Quarterly Contributions at £4				1096	0	0
15 Admission Fees				150	0	0
4 Compositions for Annual Payments at £60				240	0	0
1 Composition for Annual Payments at £40				40	0	0
One year's rent of estate at Mablethorpe: due at Michaelmas 1851	116	16	0			
One year's Income Tax	3	8	0			
				113	8	0
One year's Fee farm rent of lands in Sussex: due at Michaelmas 1852				19	4	0
One year's rent from Royal College of Physicians				3	0	0
Carried forward........				£1848	0	6

				£	s.	d.
Brought forward				1848	0	6
Dividends on Stock:—						
One year's dividend on £14,000 Reduced 3 per cent. Annuities	420	0	0			
Less Income Tax	12	5	0			
				407	15	0
One year's dividend on £7591 4*s.* 2*d.* 3 per cent. Consols	227	18	11			
Less Income Tax	6	17	1			
				221	1	10
Half a year's dividend on £114 5*s.* 8*d.*	1	14	2			
Less Income Tax	0	0	11			
				1	13	3
One year's dividend on £3452 1*s.* 1*d.* 3 per cent. Consols, produce of sale of premises in Coleman Street	103	11	2			
Less Income Tax	3	0	4			
				100	10	10
Donation Fund.						
One year's dividend on £5331 10*s.* 8*d.* Consols	159	18	6			
Less Income Tax	4	13	0			
				155	5	6
Rumford Fund.						
One year's dividend on £2430 12*s.* 5*d.* Consols	72	17	9			
Less Income Tax	2	1	9			
				70	16	0
Fairchild Fund.						
One year's dividend on £100 New South Sea Annuities				3	0	0
Bakerian Lecture and Copley Medal Fund.						
One year's dividend on £366 16*s.* 1*d.* New South Sea Annuities	10	18	0			
Less Income Tax	0	6	2			
				10	11	10
Wintringham Fund.						
One year's dividend on £1200 Consols	36	0	0			
Less Income Tax	1	1	0			
				34	19	0
Miscellaneous Receipts:—						
Sale of Philosophical Transactions, Abstracts of Papers, and Catalogues of the Royal Society's Library				304	11	0
One-half Expense of printing Captain Elliot's Magnetical Paper, repaid by the East India Company				255	0	4
Sale of One Rood and Thirty-Eight Perches of Acton Estate to Railway Company				115	0	0
Total Receipts				£3528	5	1

PAYMENTS.

				£	s.	d.
Fairchild Lecture.—The Rev. J. J. Ellis, for delivering the Fairchild Lecture for 1852				3	0	0
Bakerian Lecture.—Professor Wheatstone, for the Bakerian Lecture for 1852				4	0	0
Croonian Lecture.—Professor Owen, for the Croonian Lecture for 1852				3	0	0
Salaries :—	£	s.	d.			
S. H. Christie, Esq., one year, as Secretary	105	0	0			
Thomas Bell, Esq., one year, as Secretary	105	0	0			
Ditto for Index to Phil. Trans.	5	5	0			
Capt. Smyth, one year, as Foreign Secretary	20	0	0			
Charles R. Weld, Esq., one year, as Assistant-Secretary	300	0	0			
Mr. White, one year, as Clerk	100	0	0			
Porter	40	0	0			
				675	5	0
Purchase of £114 5*s.* 8*d.* 3 per cent. Consols				115	0	0
Fire Insurance, on the Society's Property				45	1	6
Gratuity to Bank Clerks				1	1	0
Powers, Cleaning Rooms and Books				9	15	0
Repair of Instruments				20	8	7
Bills :—						
Taylor :						
Printing the Phil. Trans., 1851, part 2	259	8	6			
Ditto, 1852, part 1	102	0	6			
Ditto, Proceedings, Nos. 82—89; Circulars, Lists of Fellows, Ballot-lists, Statement of Payments, Minutes of Council; Government Grant Committee, Notices, &c. &c.	114	15	0			
				476	4	0
Basire :						
Engraving and Printing Plates in Transactions, 1852, part 1	74	19	10			
Ditto, part 2	177	19	2			
				252	19	0
Walker :						
For Engraving	254	10	9			
Gyde :						
For Wood Engraving	43	11	6			
Ford and West :						
Printing	66	0	0			
				364	2	3
Carried forward				£1969	16	4

				£	s.	d.
Brought forward				1969	16	4
Bowles and Gardiner:						
Paper for the Phil. Trans., 1851, part 2,	57	15	0			
and 1852, part 1	123	0	9			
				180	15	9
Gyde:						
Boarding and Sewing 800 Parts of Phil. Trans., 1851, part 2	22	18	0			
Ditto, 1852, part 1	11	4	0			
Ditto, Extra binding	25	9	9			
				59	11	9
Tuckett:						
Bookbinding	33	17	6			
Hyde:						
For Stationery	10	13	6			
Saunderson:						
For Shipping Expenses	14	3	9			
Brecknell and Turner:						
Candles, and Lamp Oil	17	18	2			
Arnold:						
For Coals	26	8	0			
Meredith:						
Mats, Brushes, Fire-wood, &c.	6	1	2			
Cubitt:						
For repairs and relaying Carpets, &c.	32	14	7			
Hewitson:						
For Furniture	15	16	0			
Ward:						
For Furniture	15	15	0			
Charlton:						
For Cases and Shelves	6	19	0			
Humphries:						
For Livery	5	10	0			
Tea, Waiters, &c. at Ordinary Meetings	34	14	0			
				220	10	8
Books purchased:						
Dulau and Co.: for Books	37	2	9			
Taylor: for ditto	43	5	4			
Gould: for ditto	12	12	0			
Nutt: for ditto	22	16	6			
Second-hand ditto	61	4	3			
				177	0	10
Taxes:						
Land and Assessed Taxes	18	12	9			
Income Tax	4	19	2			
				23	11	11
Carried forward				2631	7	3

				£	s.	d.
Brought forward				2631	7	3
Rumford Fund:						
Mr. Stokes, Medal and Dividends				141	12	0
Donation Fund:						
Mr. Cooper	15	0	0			
Balloon Committee of the British Association	261	2	5			
				276	2	5
Wintringham Fund:						
Governors of Foundling Hospital				198	16	3
Petty Charges:						
Postage and Carriage	40	13	5			
Expenses on Foreign Packets, &c.	4	3	3			
Stamps	0	7	6			
Charwoman's Wages	27	6	0			
Extra Cleaning	2	2	0			
Miscellaneous expenses	23	14	11			
				98	7	1
Balance in the hands of the Treasurer				182	0	1
Total				£3528	5	1

EDWARD SABINE, *Treasurer.*

November 30*th*, 1852.

Estates and Property of the Royal Society.

Estate at Mablethorpe, Lincolnshire (55 A. 2 R. 2 P.), £116 16*s*.
Estate at Acton, Middlesex (32 A. 2 R. 2 P.).
Fee farm rent in Sussex, £19 4*s*. per annum.
One-fifth of the clear rent of an estate at Lambeth Hill, from the College of Physicians, £3 per annum.
£14,000 Reduced 3 per cent. Annuities.
£20,119 14*s*. 0*d*. Consolidated Bank Annuities.
£366 16*s*. 1*d*. New South Sea Annuities.

The Receipts during the past year, exclusive of the Balance of the last year and the Receipts from the Donation, Rumford, Fairchild, Wintringham, Bakerian and Copley Fund, were £3146 4*s*. 3*d*.

The Expenditure during the same period, exclusive of £115 0*s*. 0*d*. invested in the Funds, arising from the sale of land, and of sums paid on account of Trust Fund was £2604 14*s*. 4*d*.

Excess of Income over Expenditure £501 9*s*. 11*d*.

The augmentations to the Library included in the Expenditure of the present year, exclusive of binding, amount to £177 0*s*. 10*d*.

Cost of printing the Transactions, 1851, Part II. and 1852, Part I. £1218 17*s*. 9*d*., of which £255 0*s*. 4*d*. was repaid by the East India Company, leaving £964 7*s*. 6*d*. included in the expenditure of the present year.

Balance in hand belonging to the Wintringham Fund, £34 19*s*. 0*d*.

The following table shows the progress and present state of the Society with respect to the number of Fellows:—

	Patron and Honorary.	Foreign.	Having compounded.	Paying £2 12*s.* Annually.	Paying £4 Annually.	Total.
December 1, 1851..	11	46	436	15	269	777
Since elected......	......	+4	+4	......	+11	+19
Since compounded	......	......	+1	......	−1	
Defaulters	......	......	......	......		
Withdrawn	......	......	......	......	−1	−1
Since deceased	......	−1	−21	......	−6	−28
November 30, 1852	11	49	420	15	272	767

Receipts by Annual Contributions.

1830........................	£363	4	0
1831........................	286	0	0
1832........................	255	6	0
1833........................	283	7	6
1834........................	318	18	6
1835........................	346	12	6
1836........................	495	0	0
1837........................	531	0	0
1838........................	599	4	0
1839........................	666	16	0
1840........................	767	4	0
1841........................	815	12	0
1842........................	910	8	0
1843........................	933	16	0
1844........................	1025	16	0
1845........................	1010	0	0
1846........................	1074	0	0
1847........................	1116	8	0
1848........................	1122	16	0
1849........................	1130	16	0
1850........................	1146	4	0
1851........................	1117	12	0
1852........................	1135	0	0